Raising their heads above the foliage of that miniature grove of wild mandrakes are a few specimens of the Yellow Ladies' Slipper (*Cypripedium pubescens*), and below them in stature, but of superior beauty, we find the Showy Orchis (*Orchis spectabilis*). In the groves of the "river bottom" are to be found our New England violets and buttercups, and other species of the same genera which are peculiarly Western, and with them are Phloxes, Erythroniums and other plants equally worthy to be mentioned, but their names would occupy too much space. The elegant *Collinsia verna* must, however, not be omitted, nor the flaming Red-bud, which is now clothed only with its garlands of purple flowers, and rivals in its dazzling splendor some of our choicest exotics.

In August the prairies put on their gold and purple when the Rudbeckias, Helianthuses, Silphiums and other allied genera, appear in flower in about eighteen different species, all having purplish or purple disks and yellow rays. In contrast with these, the purple Cone-flower, Echinacea, displays its long drooping *purple* rays, and more showy than these are the long purple racemes of several species of Liatris. Succeeding these come the Asters and Eupatoriums of different hues, and the Solidagos or Golden-rods and kindred composites of about twenty-five species. Finally in November the Geradias and Gentians close the season of botanizing on the prairies of Illinois.

THE CHIMNEY SWALLOW.

BY AUGUSTUS FOWLER.

This bird arrives at the eastern part of Massachusetts usually between the twenty-fifth of May and the first of June, departing for the South in the latter part of August. Not arriving until the season has far advanced, it is, consequently, the last of the family of swallows to visit its breed-

ing place. After their arrival they visit some unoccupied chimney or hollow tree, which a great number use as a temporary residence during stormy weather, and to roost in. In this as it were aimless gathering-place, they do not long remain, but soon begin to select their companions, and at such times they may be seen high in the air, especially in the middle of an extremely warm day, chasing each other in circles upon extended wings, but without that quick vibrating motion they employ when in pursuit of their prey, uttering the while their peculiar notes; their choice of mates being made they commence building their nests. They are usually placed in a chimney, in which a number of pairs breed, for they colonize the same place to the number of three or four pairs, and sometimes to fifty pairs, more or less. The nest is constructed in a singular manner: it is made of small dry twigs, broken from some dead branch of a tree by the bird flying swiftly against it, and then carried to the spot and fastened to it with a strong viscid substance supplied by their large salivary glands. Each stick is laid near the other and some crosswise, and there glued by the bird until the nest is finished, which is done by spreading over the entire surface of it, as well as the sides of the wall to which it is attached, a coat of the same tenacious gum. It resembles a shelf, containing only a small cavity to receive the eggs, and lacks the soft lining that characterizes the nests of other species of swallows.

In the month of May (1868) a chimney was taken down in the village called Putnamville, in Danvers. It was a large chimney connected with a shoe factory, that had not been used for four or five years. During the time of its disuse a large colony of chimney swallows occupied it to breed in. I had a good opportunity to examine their nests, to take their dimensions, etc., and not one of the many which I saw (and the number of nests were upwards of two hundred) were "lined with a few feathers and straws."

Although their visit is short, they raise two broods in the

season. The first nest being built, the female lays usually four pure white eggs, which measure thirteen-sixteenths of an inch in length, by seven-sixteenths of an inch in breadth, and is assisted by the male in the process of incubation. A few days after the young appear, the male takes them in charge, while the female builds again, as she is seen in the last of June obtaining materials to build or to repair another nest, and thus we see young birds in the same chimney of a different size and age; it therefore requires all the energies of the parent birds to supply their offspring with a sufficiency of food, and claims their labor through the day and a greater part of the night. Some species of the family of finches conduct their family affairs in like manner.

Mr. Audubon, in speaking of the habits of the song-sparrow, remarks: "among the many wonders unveiled to us by the study of nature, there is one which long known to me, is not the less a marvel at the present moment. I have never been able to conceive why a bird which produces more than one brood in a season, should abandon its first nest to construct a new one, as is the case of the present species; while other birds, such as the osprey and various species of swallows, rear many broods in the first nest which they have made, which they return to after their long annual migrations, repair and render fit for the habitation of the young brood to be produced." "There is another fact which renders the question still more difficult to be solved. I have generally found the nests of these sparrows cleaner and more perfect after the brood raised in them have made their departure, than the nests of other species of birds, mentioned above, are on such occasions,—a circumstance which would render it unnecessary for the song-sparrow to repair its nest."

The first nest of the sparrow is occupied by the first brood, and are tended by the male, while the female sparrow has built a second nest and is setting, and by the time the first brood is cast off by him, to care for themselves, he finds

another brood ready for his care; thus all the season is occupied by them in building nests, in incubation, and in rearing their young, until the moulting season arrives, which is about the twenty-fifth of August. The pigeon family breed in a similar manner, except that the young are fed from the crop of the male, and it is truly a greater wonder in nature, that there should exist a sympathy between the male pigeon and his offspring, and that at their appearance his crop should undergo so great a change. The rapacious birds return annually to their old nests, and by repairing them, make them suitable receptacles for their eggs. There is an unfitness in the structure of birds of prey which makes it inconvenient for them to build a nest with the facility of some other families of birds. The white-headed eagle selects some dead branch of a tree, and by hooking her bill on it, with her weight breaks it off. In its descent, she swoops and grasping it with her claws carries it away to make her nest; she pounces upon bunches of hay, sods of earth or any heap of rubbish, and carries it to the already accumulated heap of such substances. There is no artistic skill displayed in its construction; the top of it is merely a horizontal plane, with a shallow cavity to receive her eggs. Some families in this order of birds build better nests, but they show the same unhandy and awkward way in doing it, and there are some species of other families in this order which build no nest.

There are other birds, also, such as the swallows, whose forms are ill-adapted for good nest builders; with small feet and short weak legs it is toilsome for them to gather material for a nest from off the ground. Now observe all those birds whose structure is similar to that of the swallow family. Not one species of the family Caprimulgidæ builds a nest. The whippoorwill lays her eggs on the ground in the woods: the night-hawk on the naked rock, or the bare ground in open pastures. Look at the belted kingfisher, whose form is similar to the above mentioned birds; how ill-adapted he is to gather materials from the ground to form a nest. Al-

though a bird of strong pinion, yet deprive him of the use of his wings, and place him on the land, and he is almost helpless.

In the different species of the Picidæ, or Woodpecker family, are as many instances that the structure of birds determine whether those of certain forms build a nest or not, and if they do, they return to it annually to render it fit for a home for themselves and family during the breeding season.

It is a tedious task for the chimney swallow to procure the material for its nest; it requires energy, skill and strength to perform the work. Flying with force, they grasp the point of the twig with their bill, and often try several times before they succeed in breaking it off. The female visits her former breeding place, and examines her nest; if it needs repairs, she adds more twigs and gum to it, and it is all right again. Thirty years ago this species of swallow was rarely found breeding in Essex County; now many pairs breed in almost every village where they find an unoccupied chimney.

The Chimney Swallow (*Cypselus pelasgius*) does not possess the easy and graceful motion when on the wing that is shown by the Barn Swallow (*Hirundo rustica*) in his flight, but moving more swiftly and vigorously, they must destroy an innumerable number of insects in a season. It not unfrequently happens that their nest is dislodged from its place, and falls in consequence of rain or damp weather. When such accidents happen, the whole brood is precipitated to the bottom of the chimney. If its members are of sufficient age and strength, they will climb up again and remain clinging to its sides, until fledged and able to care for themselves.

There are occurrences happening to them which are of greater moment. Sometimes having selected a flue in the chimney leading to the bedroom, and having there brought forth their numerous young, and their cares consequently increasing so as to require their labors in the night, the rushing whirring noise of their flight as they pass up and

down the flue may so disturb the nervous sleeper that he is determined to be rid of such an annoyance; he accordingly prepares in the habitation of these birds a fire of straw; the parents of the unfledged young flee in dismay, and rise above their smoking tenement and wheel about in terror, then dive down near its top as though they would rescue their suffocating brood from a death so awful. At last their courage gone they turn and soar away above the scene, while their young drop one by one in the fire below, and the parental feelings of the old birds induce them to linger about their desolate home for many days. To obviate this inhuman practice, a board placed on the top of the chimney before they commence breeding is all that is necessary.

THE STRUCTURE OF THE PITCHER PLANT.

BY J. G. HUNT, M. D.

"High among the mountains,
Near the bubbling fountains,
Where the trees bend low,
Where the wild flowers grow,
'Mid the shadows deep"
Nepenthe's pitchers weep.

About twenty species of the genus Nepenthes are known to botanists, and while some are natives of swamps in Africa and China, most of the species are found on Mount Kinau Ballou, in the Island of Borneo, growing at an elevation of from three to eight thousand feet above the sea. The species whose minute anatomy we partially describe, is the *Nepenthes distillatoria*, found growing in China and at the Cape of Good Hope. This plant often attains the length of ten or twelve feet, generally lying prostrate, or partially supported by other plants. It bathes its roots in the hot swamps near the coast, but cannot lift its flowers very high in the sunshine, because its branching stem which bears many long and partly clasping leaves, and also its precious